FAA | AVIATION NEWS

JUNE 1962

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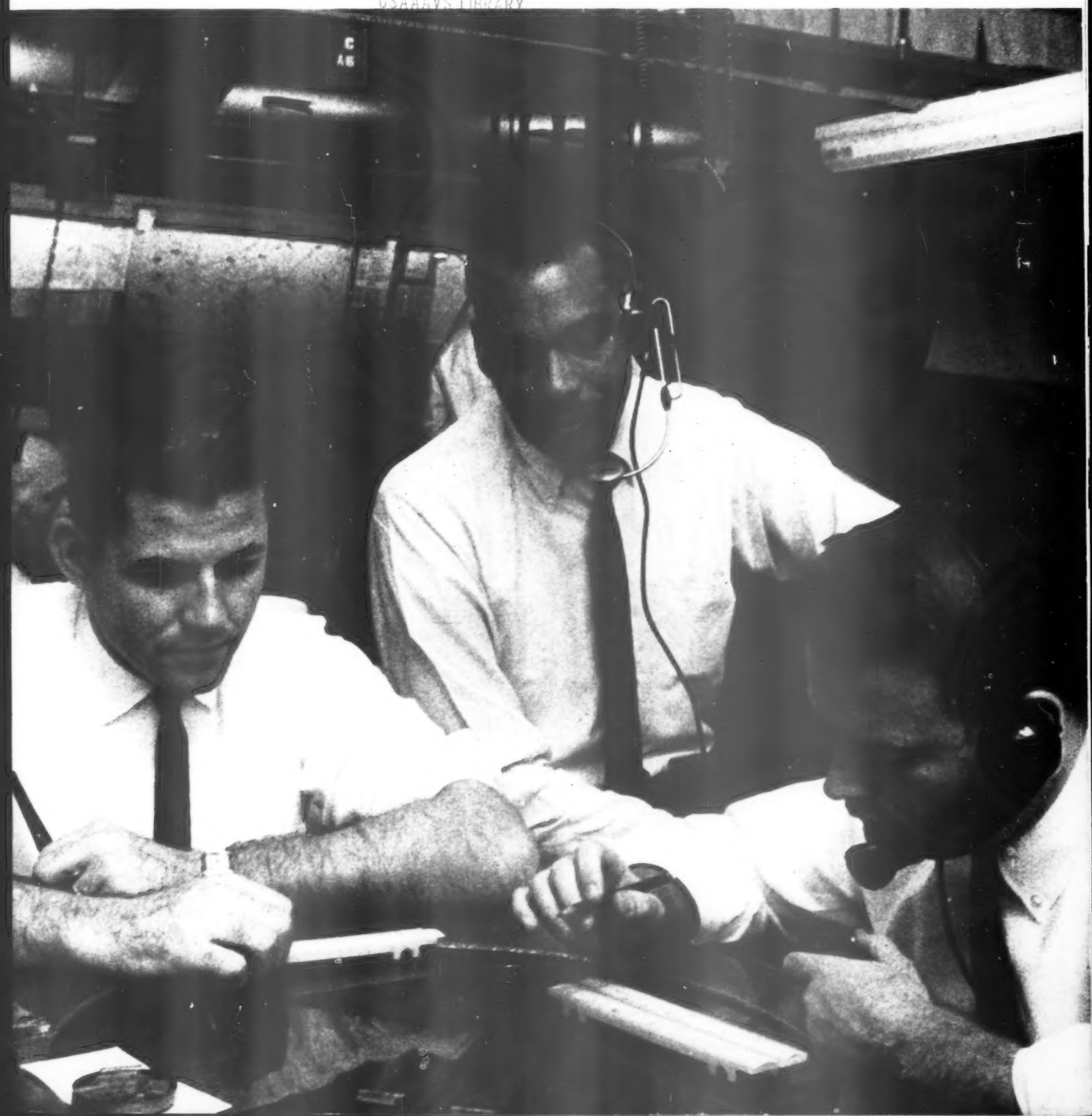

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FEDERAL AVIATION AGENCY

JUNE 1962

RESPONSIBILITY AND JUDGMENT

Airplanes offer a double-edged challenge to pilots these days as designers and engineers improve them.

The immediate challenge is to pilot skill. As aircraft performance improves, pilots must be more competent and alert. The airplanes demand more training and proficiency flying, and a greater variety of skills to handle multiple systems—mechanical and electrical, communications and navigation.

But the deeper challenge is to pilot judgment. Responsible flying has been a key to flight safety as long as airplanes have existed. Over the years, however, the aircraft has become a substantially more efficient, more reliable machine. This fact is an increasing embarrassment to the pilot who doesn't measure up to the safety potential of his airplane.

As airplanes become safer machines, the safety spotlight glares with increasing intensity on the pilot—and the discouragingly consistent fact that each year pilot error causes more than 80% of general aviation accidents.

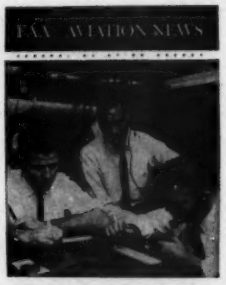
Training and education are partial answers. The FAA and other aviation organizations offer a variety of courses and briefings to improve pilot skills and perspective. They emphasize the prudence of maintaining proficiency, using check lists, filing flight plans, checking weather, knowing controls and other systems intimately.

But a pilot has to exercise good judgment to use these skills safely and effectively. There is no course or briefing that can convince a pilot he should take the time to go around when his approach is too low. Or that he should go to an alternate when he's late for a date and his destination airport is closing in.

When pilots leave carelessness and daredevil whims behind, we will begin to make a dent in the accident record. Responsibility and judgment are the partners of safety. The airplane is up to the job. How about you?

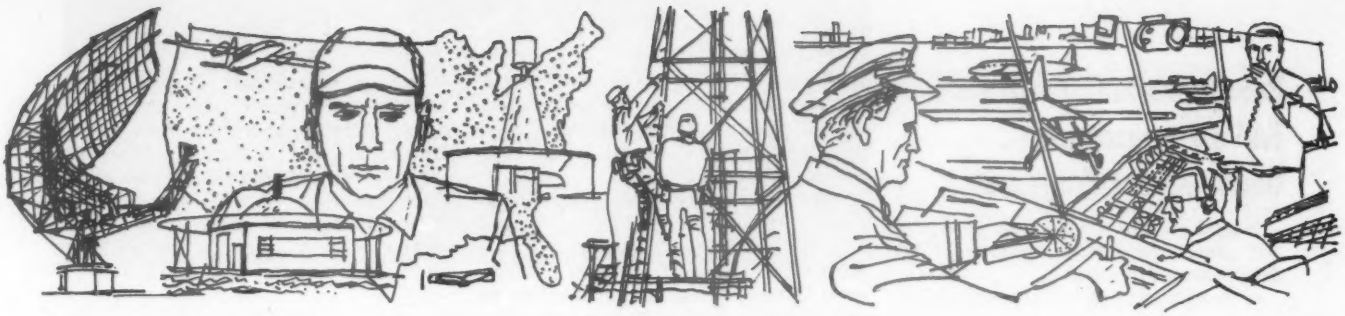
CONTENTS

3 FIRST CONTRACTS AWARDED FOR SUPERSONIC TRANSPORT RESEARCH
4 REORGANIZATION INTEGRATES FAA'S R&N PROGRAMS
4 EVALUATION UNDERWAY OF AIRMEN'S COMMENTS ON 20 RULE CHANGES
5 PROPOSED SAFETY RULES WOULD AFFECT SPORTS CHUTISTS, PILOTS
5 GENERAL AVIATION GETS DISASTER PLAN BRIEFING
6 FAA STUDIES SEEK TO INCREASE USABLE AIRSPACE OVER THE ATLANTIC
6 FIRST PART OF RECODIFIED REGULATIONS ISSUED
7 CREDO FOR AIR TRAFFIC CONTROLLERS—TRAINING, TRAINING, TRAINING
8 MISSION: SAFE AND EFFICIENT USE OF THE NATION'S AIRWAYS
10 SAFETY SEMINARS SCHEDULED ON SUMMER FLYING PROBLEMS
10 PROPOSED RULE WOULD BAN FLIGHTS OVER DISASTER AREAS
11 AIR-MINDED CALIFORNIA CITY STRIVES TO SAVE ITS AIRPORT
12 RAPIDLY INCREASING AVIATION MEDICAL EXAMINERS FACILITATE PHYSICAL EXAMS
12 FAA-AIR FORCE CONFERENCE REVIEWS SAFETY PROCEDURES
12 MAJOR NAVAIDS COMMISSIONED
12 LIFE SAVING SIGNS
13 BOGUS PARTS RACKET IS THREAT TO AIR SAFETY
14 THE DESCENDANTS OF NAN ONE
15 LETTERS TO THE ADMINISTRATOR



COVER: *Technology—in the form of a long range radar scope, and human endeavor—in the form of highly-trained air traffic controllers, epitomize the unity of man and machine in carrying out the responsibilities of managing the nation's air traffic.*

FAA AVIATION NEWS is published monthly by the Office of Public Affairs, Federal Aviation Agency, Washington 25, D.C., in the interest of aviation safety and to acquaint readers with the policies and programs of the Agency. Use of funds for printing this publication approved by the Director of the Bureau of the Budget January 25, 1962. Subscription rates: U.S. $1.50 a year, foreign $2.00 a year, single copies 15 cents. Send check or money order (no stamps) to Superintendent of Documents, Government Printing Office, Washington 25, D.C.



FIRST CONTRACTS AWARDED FOR SUPERSONIC TRANSPORT RESEARCH

The first contracts were awarded this month in an FAA-managed, government-industry research program to explore the feasibility of developing a commercial supersonic transport.

The contracts—in selected problem areas of aerodynamics, propulsion, structures, materials and flight control—totaled $2.66 million. They went to five companies, a top aeronautical laboratory and the National Bureau of Standards.

Under cost-sharing provisions in seven of the agreements, two concerns will spend $890,000 of their own money on what amounts to about a dollar-for-dollar basis with the government.

Aim of the over-all supersonic research program at this point is to determine both the economic and technical feasibility of proceeding with a government-industry program to develop and produce an airliner capable of flexible operations through a broad speed range, from subsonic to the Mach 3 regime and beyond, for service on domestic and international routes.

The FAA, which received an appropriation of $11 million to carry on this research effort during fiscal year 1962, will recommend to Congress and the White House whether or not the program is feasible and should be carried on into the design and development stage. This recommendation is due before next summer. The FAA has requested an appropriation of $25 million for fiscal 1963 to carry on this important research program.

JOINT EFFORT

The National Aeronautics and Space Administration and the Department of Defense are governmental teammates with FAA in the research program. A broad cross-section of distinguished private citizens in the aviation community are acting as advisors.

The Project Horizon report on national aviation goals, prepared for President Kennedy by a group of leading aviation experts last year, strongly recommended a program to develop and produce such a plane, which would move passengers transcontinentally across the United States in under two hours and across the Atlantic in a little over two hours. The plane could be operational in the 1970's if development begins in the near future.

The group also suggested that government assistance, at least in the kick off stages, would be necessary because of the vast costs and mammoth size of the program. FAA was subsequently assigned over-all responsibility for the government-industry effort.

Largest of the initial contracts were for propulsion research. A letter contract went to General Electric's Flight Propulsion Division, Cincinnati, Ohio, for $1,122,000, anticipating a total contract effort of $2.8 million.

OTHER CONTRACTS

A letter contract also went to Curtiss-Wright, Wood-Ridge, N. J., for $308,-864, anticipating a total contract effort of $772,600. They will study compressor, turbine and combuster technologies for supersonic jet engines and engine controls. Within this area also falls work in the fields of seals and bearings, auxiliary power extraction, duct heater augmentation and long engine life.

A $1,846,683 package of cost-sharing contracts in the fields of structures, aerodynamics and materials was awarded to Douglas Aircraft, Santa Monica, Calif., which has teamed with McDonnell Aircraft, St. Louis, Mo., for this effort. The two firms will undertake seven contracts. The Federal Aviation Agency is providing $956,640 and the firms are each putting up half of the remaining $890,-043. The structures-aerodynamics-materials package breaks down this way:

- Structural analysis to determine thermal stress distribution in brazed or bonded joints used to splice honeycomb structural panels.
- Development of the maneuver load spectrum for supersonic transport flight conditions.
- Comparative analysis and testing of several types of structural concepts including single-skin stiffened, double-skin sandwich and multiwall structures.

North American Aviation, Los Angeles, will conduct acoustic studies under a $138,109 contract. The company will place instrumentation on the Air Force's developmental RS-70 Mach 3 airplane for future flight testing. Data collected on boundary layer noise will be used to combat sonic fatigue problems in design of a commercial supersonic transport.

Cornell Aeronautical Laboratory, Buffalo, N.Y., was awarded a contract totaling $111,250 to study the feasibility of a self-adaptive flight control system for supersonic transport application. Such a system would "pre-sense" structural forces on the aircraft during flight and help adapt the plane to them.

A $25,000 contract went to the government's National Bureau of Standards, Washington, D. C., for a study of problems in connection with the use of glass for windshields in a supersonic transport.

Further problem area contracts were under negotiation.

Design stage for an actual airplane would follow a government-industry decision to go ahead with development and production of the plane. Present thinking is that the aircraft would be about 200 feet long, carry 100 to 150 passengers, weigh up to 400,000 pounds, and have a range in the neighborhood of 3,500 nautical miles. Primary structural material probably would be steel, titanium or a so-called "super alloy."

Reorganization Integrates FAA's Research and Development Programs

New faces and a major reorganization last month heralded stepped-up FAA developmental activity.

- Robert J. Shank, a broadly experienced systems development engineer, was appointed Deputy Administrator for Development. The post was previously vacant.
- Melvin Gough, engineer and test pilot who was formerly the Civil Aeronautics Board's Director of Safety, became Director of the Agency's new Aircraft Development Service.

A new Systems Maintenance Service was established, elevating the role of maintenance in the Agency's overall responsibility for safe and efficient movement of air traffic.

Under Shank, FAA established a four-service development organization with an across-the-board research-to-maintenance hardware capability. The former Aviation Research and Development Service under Joseph D. Blatt, renamed the Systems Research and Development Service, became a component of this organization.

The new Aircraft Development and Systems Maintenance Services and the also-new Installation and Materiel Service joined SRDS in the organizational package. The Installation and Materiel and Systems Maintenance outfits were created from the former, separate Aviation Facilities Service. Donald King, formerly acting Director of the Aviation Facilities Service, became Deputy Director and Acting Director of Installation and Materiel.

As a result of this reorganization, the FAA now has a single, integrated development organization to conduct research and development in connection with both aircraft and aeronautical systems, evaluate hardware, procure and direct installation of equipment and develop maintenance standards.

Top priority task ahead of the Systems Research and Development Service is creation of a modern national airspace utilization system to meet growing traffic requirements. General blueprint for the system was set forth in last year's Project Beacon report. Specifics of such an air traffic control system are being worked out by a system design team within the Research and Development Service. This group, composed of 14 experts in different phases of aviation, is charting an over-all approach to establishing the necessary ground environment for the late 1960's and thereafter. The team's system recommendations are scheduled to be delivered by the end of June.

The Aircraft Development Service is concerned with aeronautical programs. It is assuming responsibility for FAA's Supersonic Transport Program Management Office, the Hummingbird helicopter and V/STOL project, Project Little Guy for the development of a simplified light aircraft cockpit layout, FAA's part of the primarily Air Force-managed C-141 project to develop a turbofan cargo transport, and the program aimed at developing a jet-age replacement for the old DC-3 piston-powered workhorse transport. Airborne electronic gear that forms part of air-ground operational systems falls within the area of responsibility of the Systems Research and Development Service.

The Installation and Materiel Service is charged with responsibility for procuring and handling installation of all air navigation and air traffic control facilities. IMS becomes the Agency's single supply service for procuring all equipment—from electronic black boxes to airplanes for FAA's small experimental and administrative fleet.

The Systems Maintenance Service is responsible for developing maintenance standards for equipment and facilities. Actual maintenance is performed by FAA regions throughout the country.

The four services will operate together as a development team to meet the closely related and increasingly complex system hardware requirements of the FAA.

Shank, now top man in FAA development operations, brought with him a 25-year reputation of systems engineering achievement in private industry. He was a member of the technical staff of Bell Telephone Laboratories, N. Y., from 1937 to 1947. Then he became head of the circuit and system development section, Hughes Aircraft Co., Culver City, Calif. He directed establishment of the company's radar laboratory, subsequently became vice president and director of the Hughes systems research and development division.

Shank left the presidency of a West Coast electronics firm he founded a few years ago, American Systems of Hawthorne, Calif., prior to joining FAA. The firm held two FAA antenna contracts.

Before joining FAA, Aircraft Development chief Gough headed the CAB Bureau of Safety for two years. Formerly, he was Chief of the Flight Research Division at the Langley Research Center of the National Advisory Committee for Aeronautics. After the NACA became the National Aeronautics and Space Administration, he was named Director of the Coordination Office for the Atlantic Missile Range at Cape Canaveral, Fla.

Gough began his career as a government aviation official with the NACA as an engineer and test pilot in 1926.

Evaluation Underway of Airmen's Comments on 20 Rule Changes

FAA is analyzing approximately 4,000 pages of comments on 20 proposed general aviation rules in an evaluation leading to publication next fall of the final versions.

Proposals for changes and new rules were discussed in April at eight regional Air-Share meetings. They grew out of discussions at more than 100 previous FAA meetings with airmen.

Although the last meeting was held April 30, full public participation was not completed until May 30, deadline for written comments.

In analyzing the proposed rules in light of comments, the critical point is the objective. Is FAA accomplishing what it is trying to do? Is the Agency completely justified in continuing with the idea? Is there an easier way—perhaps a better way—to attain the same objective? Airman comment and constructive criticism is highly valuable.

Preliminary review of comment on the 20 proposed rule changes indicates accord in five areas where FAA proposes to relax the rules. These include elimination of the requirement to display certificates in specified aircraft locations, reduction of aircraft record keeping, permission to establish new records without previous history for aircraft engines rebuilt by a manufacturer or his approved agency, extension of time intervals for operational checks of VOR equipment, and removal of the ban on student pilot business flying.

Proposed rules representing increases in airmen requirements are receiving the widest range of airman comment. All comments are open to public inspection in the FAA's Docket Section.

Airmen were urged to add their names to FAA's mailing list to receive notices of meetings and proposed rulemaking, and were asked to respond with written comments.

Requests to be placed on this list should be addressed to the Federal Aviation Agency, FS-40, Washington 25, D.C.

Proposed Safety Rules Would Affect Sports Chutists, Pilots

The FAA has proposed new rules designed to promote greater safety in the fast growing sport of "sky diving."

Following the recommendation of FAA Administrator N. E. Halaby, the Agency would make parachutists, as well as pilots, responsible for safe conduct of non-emergency jumps. At present, only pilots of aircraft which drop the parachutists have this responsibility.

Halaby called for new rules after completing his first parachute jump at Orange, Mass., last July. He made the jump at the invitation of the Massachusetts Sport Parachuting Commission to familiarize himself with the sport and its safety problems.

The FAA will accept comments on the proposed rules until June 30. All comments will be considered by the Administrator before taking final action on the proposals. In the interim, the Agency is urging that parachutists make every effort to comply with the rules voluntarily.

"Parachuting has experienced a phenomenal increase in popularity during the past five years and greater regulation is necessary to protect air traffic, persons and property on the ground and the jumpers themselves," Halaby said.

In 1956, there were only 238 sport parachute jumps in this country. Four years later, the number had mushroomed to an estimated 60,000.

"If sky diving is to continue to grow as a sport, it must do so under proper conditions," Halaby said. "We must make sure that sport parachuting contributes to the national interest and not to national peril."

Last year, 14 persons were killed in jumping accidents according to statistics compiled by the Parachute Club of America. No figures are available on the total number of injuries.

"We can count ourselves fortunate that more deaths have not resulted from the lack of adequate regulations for sport parachuting," Halaby commented. "In this respect, we owe a large debt of gratitude to such organizations as the Parachute Club of America, which has worked tirelessly for safe jumping standards.

"Nevertheless, certain dangerous practices remain in the sport. For example, we have had numerous pilot complaints of parachutists dropping in front of or near their aircraft. We cannot permit such unsafe conditions to exist."

Under the proposed rules, non-emergency jumps over congested areas and open-air assemblies would continue to be prohibited except when authorized by the FAA. Only experienced parachutists would be permitted to jump in these areas and only under controlled conditions.

In addition, jumps at airports with FAA control towers would require authorization from the tower. Those made in other controlled airspace, such as the Federal Airways, would require authorization from the appropriate air traffic control facility.

In proposing to include sport parachutists under the Civil Air Regulations, the Agency pointed out that sky divers have considerable control over the conduct of a jump. They frequently are responsible for positioning aircraft over the jump target and have the ability to maneuver themselves during descent. The new steerable parachutes, for example, have built-in forward speeds ranging from 6 to 15 miles per hour, depending on the type canopy modification.

The new rules would apply not only to civilians but also to military pilots and parachutists in some instances. For example, they would cover jumps made by members of the armed forces at civil airports, but not those made at most military facilities. They also would not apply to military parachute equipment when used by armed forces personnel.

The rules would require that airmen making night jumps have a means for producing a light visible for at least three miles. This provision is broad enough to include reflecting-type lights as well as those visible from any direction.

Visibility requirements for jumps would be five miles in continental control areas and three miles elsewhere. Jumps through clouds would be prohibited, since they could present a hazard to aircraft flying through or below the clouds.

Parachutists would be permitted, as they now are, to pack their own main chute, but the auxiliary chute still would have to be packed by a certificated rigger. All chutes would be required to have been packed within 60 days of their use.

General Aviation Gets Disaster Plan Briefing

Continuing threat of nuclear war has spurred disaster control planning, including development of a new briefing manual for general aviation.

President Kennedy has given the FAA responsibility for preparing a national program to assist civil aviation and to use its resources in a war or other emergency.

More than 3,000 airmen already have attended briefing sessions on disaster planning. In addition, more than 600 FAA employees in each of the seven regions and 300 industry representatives have voluntarily taken free courses in radiological monitoring. Most airlines already have participated in the briefings.

The program is based on the assumption that the nation will depend on the resources of civil aviation during the recovery period following a disaster, either man-made or natural. These include nuclear, chemical and biological warfare and sabotage, as well as hurricanes, tornadoes, floods, fire and explosion. Because general aviation airplanes are widely dispersed over the country, they are less vulnerable to damage.

FAA's briefing covers the effects—and how to minimize them—of blast, heat and radioactive fallout on people and airplanes. Also included is a discussion of the safety factors involved in using airplanes at various altitudes to measure radioactivity and to assess ground damage from the air.

Although special planning is desirable to protect airplanes from fallout, simpler methods are also described. Procedures for decontaminating airplanes are explained with emphasis placed on the ability to monitor radioactivity. Since radioactivity cannot be seen, heard, smelled or felt, it becomes obvious that only airmen trained to use radiation detection instruments can contribute effectively to national survival.

Additional information can be obtained from the Disaster Control Planning Officer, Flight Standards Service, at FAA's Washington Office or from the Civil Aviation Defense Planning Officer in each FAA Regional Headquarters.

FAA Studies Seek to Increase Usable Airspace over the Atlantic

Project Accordion, FAA's transatlantic air navigation study, moved into its primary data-gathering phase last month with the mooring of two buoys in mid-ocean to provide fixed check points for jets passing overhead.

Accordion, aimed at compressing the North Atlantic traffic pattern and thus providing more usable air space between North America and Europe, is part of a broad Agency examination of transatlantic operations.

The broad FAA program is called LODISNAV (for Long Distance Navigation). It includes a wide variety of projects in air traffic control, communications, navigation and weather.

These projects provide data for a high-level transatlantic study being conducted by five Agency specialists comprising the Systems Planning Team for the North Atlantic Region (SPANAT). Following an extensive, broad gauge analysis of systems, problems and research project findings, this team will produce recommendations for long-term improvement of transatlantic operations in the years ahead. These recommendations will, in effect, be the first draft of a U. S. position for presentation to ICAO for cooperative action. The North Atlantic nations endorsed the concept of such a long-range cooperative program at the ICAO North Atlantic Regional meeting in Paris last year.

At present, planes flying across the Atlantic must follow widely separated tracks. Between them, in accord with international air regulations, there must be at least 2,000 feet of altitude, 120 nautical miles laterally (wingtip-to-wingtip), or 30 minutes of time longitudinally (nose-to-tail).

These safety standards have the effect of spreading out aircraft flying across the Atlantic. By comparison, planes flying transcontinentally over the United States comply with lesser standards—10 miles laterally and 10 miles longitudinally. The altitude separation standard is the same over the U. S. or the ocean, a required 1000-foot separation when the craft are below 29,000 feet and a 2,000-foot separation at 29,000 and above.

This transatlantic spread formation, with miles and miles of wide open, unused space between airplanes, is a major traffic factor at a time of increasing transocean flying. One day last summer, for example, there were 417 flights in the North Atlantic area.

Can the standards be cut, the waste space squeezed out, without at the same time affecting the all-important safety factor? Self-contained Doppler navigation equipment now being used in some airliners may provide the answer. If the Doppler equipment enables aircraft to fly across the sea with true precision, the large separation buffer between planes could be clipped with safety.

Accordion's job is to find out whether the Doppler gear is really that effective and dependable under diverse conditions. In Accordion, initiated earlier this year, the FAA is gathering data on Doppler accuracy on the North Atlantic run. This data phase of the project is expected to continue until the fall.

Primary phase of the gathering process began in May with flights over two U. S. Coast Guard buoys moored in the North Atlantic to provide ocean checkpoints for the Doppler-checking. The buoys were secured to the ocean bottom east of Newfoundland at positions where the water depths are in excess of two miles. The positions were carefully fixed celestially by the Coast Guard.

Positioned at the buoys are Coast Guard ocean station vessels that normally provide weather, search and rescue, communications and aerial beacon services. A participating airliner checks its position by Doppler against the aircraft position that is observed on the Coast Guard ship's radar as the vessel maintains position close to the fixed buoy. Data is provided in like manner as planes pass through the vicinity of Canadian and United Kingdom shore radar stations on either side of the Atlantic.

All information collected is turned over to the FAA for analysis and evaluation.

Data already has been collected on some two dozen transatlantic flights by aircraft equipped with Doppler systems. Airliners taking part at this point were regularly scheduled Trans World Airlines Boeing 707 jets. A specially-equipped FAA C-135 flew check runs over the buoys on transatlantic flights during the first week in May. Other airlines, including foreign carriers, are expected to participate as the program moves along.

Mid-ocean buoy secured to deck of Coast Guard cutter for shipment to the ocean station where it was later moored for use in Doppler-checking.

A total of 100 transoceanic flights on which Doppler check data is collected should provide sufficient material for solid evaluation. With high-density travel months ahead, FAA plans to reach this point by August or September.

Then, if the Accordion-Doppler data warrants it, the United States can be expected to call on the International Civil Aviation Organization to lower transatlantic separation standards significantly —in effect increasing usable air space over the Atlantic.

First Part of Recodified Regulations Issued

FAA's drive to simplify and consolidate all its regulations took a major step forward last month when the first Part of the new Federal Aviation Regulations was issued.

This first Part, "Definitions and Abbreviations," was developed under a recodification program aimed at making the rules easier to understand and use. The program consists solely of rearrangement and simplification of all the Agency's regulatory material. There is no change in substance or legal meaning.

Augmenting this is a new work expected later this year, "Rules of Flight" —an informal, plain language summary of selected general aviation operating rules.

FAA Administrator N. E. Halaby describes the program's objective as "simply to make our rules say what they mean so that pilots, operators and others in the aviation community whom we serve, as well as industry, will have a clearer understanding than they now have as to what they can legally do, or may not do, under the operating certificates and under our existing civil aviation law."

In a parallel move to make the regulations easier to use, the FAA is switching to a distribution and amendment system under which all rules and changes are issued in 8 x 10½ inch loose-leaf form. Future amendments can be incorporated in the code simply by replacing the appropriate sheets.

CREDO for Air Traffic Controllers

Training, Training, Training

The 12,500 air traffic controllers of the Federal Aviation Agency are the products of one of the most concentrated and comprehensive training programs in our civil government. Their responsibilities demand it—managing air traffic along 360,000 miles of Federal airways and routes and in the 250 terminal areas served by air traffic control.

Training and more training is the watchword, and it never ends. Always there are new procedures, new equipment, new and faster aircraft—and always there are more and more aircraft—exerting new demands on the air traffic control system.

It takes about two years of intensive training before a man is ready to pit his skill and knowledge against the complex job of managing the nation's air traffic.

Once he has been pronounced ready, he becomes part of a team dedicated to safe and efficient movement of air traffic. During his working hours he speaks a novel language—a precise jargon of the trade designed to avoid the possibility of misunderstanding. He makes decisions by the score; each critically important to the thousands of unknown individuals riding aircraft ranging from jet transports to military jets, from the flying businessman to the week-end pilot out for a spin. The services of the controller are available to all.

The first step for all controllers, whether they are destined for an airport traffic control tower or one of the 36 Air Route Traffic Control Centers, is an eight-week course at the FAA Academy in the Aeronautical Center at Oklahoma City. Here the fundamentals are learned.

The certificate is not easily earned. Of the nearly 300 students who start each class, about 25 percent are washed out for one of a number of reasons. Medical researchers at FAA's Civil Aeromedical Research Institute (CARI) in Oklahoma City feel that the maximum entrance age for the would-be controller should be 35. Beyond that age, the ratio of those who fail to graduate or do not survive the on-the-job training is high.

Air traffic control trainees have been selected in the past on the basis of the applicant's aviation background, such as military experience in air traffic control work, radar operation, aviation radio operator experience or pilot time.

CARI research, through testing of new students over a period of time, has determined that such background is not essential—that any student with "high level of learning ability" can become good traffic control potential.

This year, for the first time, a nationwide series of aptitude and psychological tests is being given to one-third of those who apply for controller training. CARI researchers believe this program may cut the percentage of failures in half. The standard method of selection also is being used this year, as it has in the past.

This series of tests, developed by CARI, has been checked and rechecked with student controllers at the Academy during the past eighteen months. These check the man's ability to meet the three-dimensional thinking and action required of tower or enroute controller. Forty-four oral and written tests are given in an eight-hour period. These tests determine reaction time, memory, retention of rapid-fire information, coordination, mathematical competence and perception.

Once accepted as a student at the Academy, the budding controller encounters a 320-hour curriculum. Homework—itself a monumental task—is extra. Classrooms are equipped with the latest visual aids to make lectures effective. The course includes such studies as aviation weather, navigation aids, civil air regulations, flight assistance service and radio-telephone communications. In the simulated tower cab a half dozen radio receivers blare into the student's ear.

As one instructor explained it: "We must have only the best. One of our newer methods is to get the student up to a point where he thinks he just can't take it any more. That's when we toss him another tough one. Some can keep their wits about them and work out the problem. Those are the ones who are best equipped to become controllers we must have in this day of high density traffic handling. A man may be slow at first, but if he handles the problem safely, he's the one we want to train."

The most important elements in the makeup of a good controller are timing and judgment. One veteran controller, who started back in the mid-thirties, says the controller must get to know the performance characteristics of each airplane. This doesn't happen overnight.

The on-the-job training of controllers varies with the facility to which the trainee is assigned. In the case of an assignment to a control tower, the trainee learns to effectively control traffic at several different operating positions.

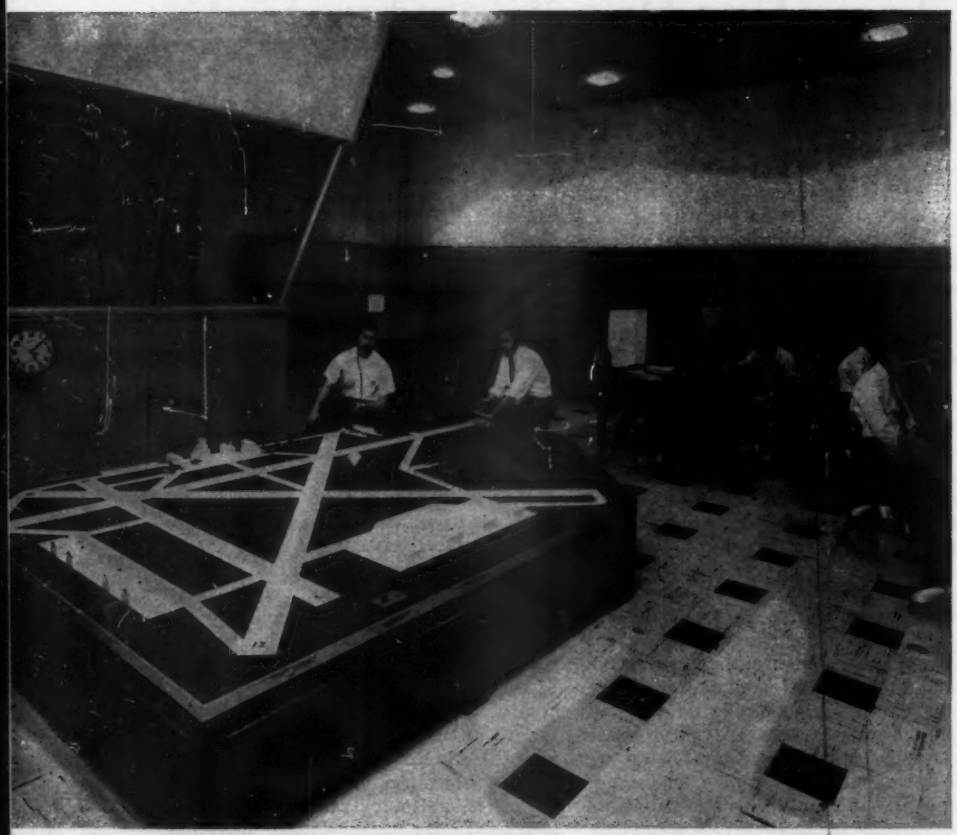
His progressive training will qualify him to master the various control positions in the tower cab and in the IFR room. He will learn approach control, departure control, radar and non-radar control, local control and ground control, as well as coordination methods required with the Air Route Traffic Control Center, and other techniques.

In the Air Route Traffic Control Centers, which are responsible for the separation of en route traffic between terminals, the story is the same. The training goes on day and night for controllers new and old.

As in the towers, center controllers are periodically relieved from the control boards, from the radar scopes and from their computer duties and given scheduled refresher training. In the Washington Air Route Traffic Control Center, for example, the training rooms are in operation 16 hours a day. Controllers are always receiving radar training. Phraseology is stressed in other classes. Upgrade training for assistant controllers hoping to qualify as full-fledged controllers is always in progress.

Veteran controllers also get their time in on the training boards as new procedures are established or new navigation aids are installed or relocated to handle new and faster aircraft as they appear on the traffic control scene. Meanwhile, the control of actual traffic in the 68,000-square mile area of the Washington Center goes on without interruption.

Although this continual training tends to become a little monotonous, controllers know that the demands of the ever changing air traffic scene require it.

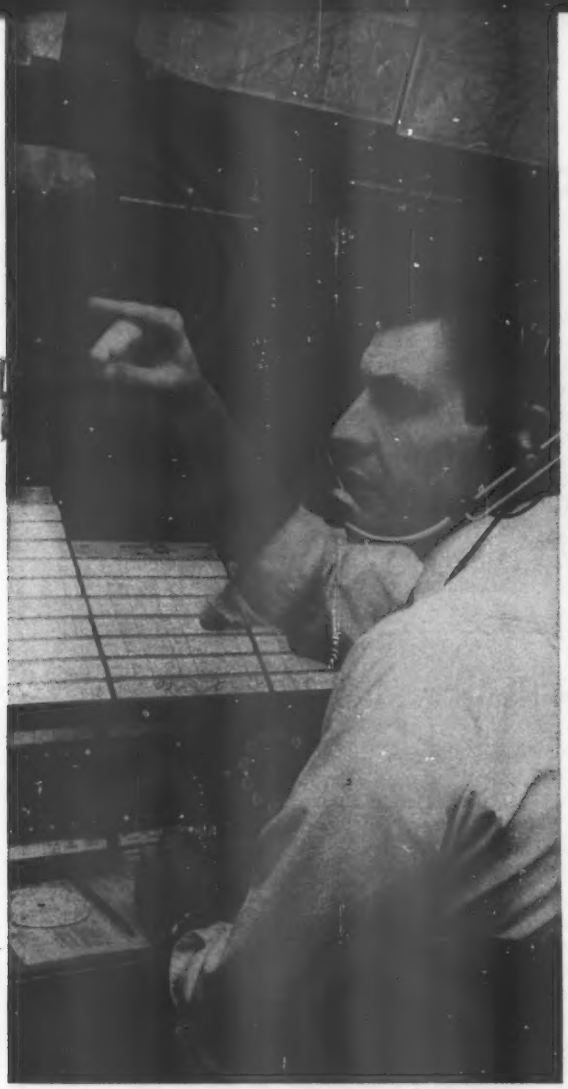


Embryonic air traffic controllers at the FAA Academy augment their classroom work with thorough training on simulator that can duplicate virtually any airport traffic.

Alert, smoothly-operating team of controllers in a busy tower can handle heaviest traffic with dispatch and safety.

Approach controllers using radar in IFR room receive traffic from Centers, pass it to local controller in tower.

MISSION · Safe and Efficient



After receiving report from pilot, controller records time and position on flight progress strip.

Left, controllers in Air Route Traffic Control Centers in front of flight progress board keep track of airplanes on a sector-by-sector basis.

Right, as airplanes fly through various sectors within Center area, progress strips are moved accordingly.

Long range radar used at Centers for en route control can penetrate the thickest fog, give controllers position information on airplanes. Small objects on radarscope, called "shrimp boats", are used to mark airplanes.

t Use of the Nation's Airways

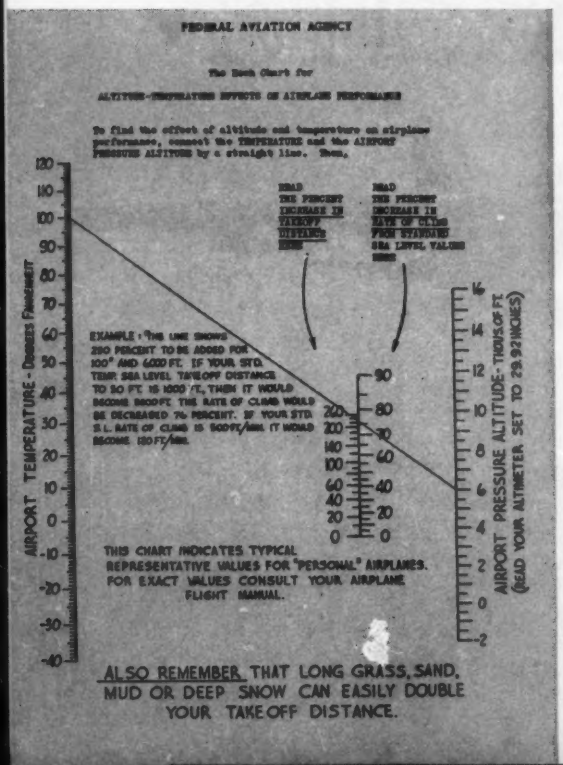
Safety Seminars Scheduled on Summer Flying Problems

FAA safety seminars will be conducted in June and July in an effort to cope with seasonal problems inherent in summer flying. In about 30 percent of the approximately 4,000 accidents reported last year, hot weather and turbulence were contributing factors.

Discussions will cover turbulent air, cross-wind takeoffs and landings, and the effects of higher than normal temperatures on small airplane performance. Dates and locations will be announced by each General Aviation District Office.

The performance figures listed in the manufacturer's manual for length of takeoff run, horsepower, rate of climb, etc., are generally based on standard conditions at sea level—59° F, barometer 29.92. Standard conditions, however, are the exception rather than the rule. Veteran and inexperienced pilots alike often run into trouble when they encounter an altogether different set of conditions. This is particularly true in hot weather, when the air is thinner and more runway distance and power are needed for safe takeoff.

Actually, it is possible to fly from a field at sea level, and have the temperature high enough above standard to give the aircraft operational performance expected at 3,000 feet above sea level. Under similar circumstances, the temperature conditions at a 2,000-foot-altitude airport could produce a 5,000-foot performance.


FEDERAL AVIATION AGENCY
AIRPORT TEMPERATURE - DEGREES FAHRENHEIT
AIRPORT PRESSURE ALTITUDE - THOUS OF FT.
(READ YOUR ALTIMETER SET TO 29.92 INCHES)
THIS CHART INDICATES TYPICAL REPRESENTATIVE VALUES FOR "PERSONAL" AIRPLANES. FOR EXACT VALUES CONSULT YOUR AIRPLANE FLIGHT MANUAL.
ALSO REMEMBER THAT LONG GRASS, SAND, MUD OR DEEP SNOW CAN EASILY DOUBLE YOUR TAKEOFF DISTANCE.

Pilots flying in above standard temperatures anywhere in the United States this summer should keep these factors in mind:

- Know the manufacturer's performance specifications for your airplane.
- When operating from a concrete runway, if Fahrenheit temperature readings are obtained from the Weather Bureau or control tower instead of the outside temperature gauge, add about 10° F. to compensate for the additional heat reflected by the concrete.
- There is a rule of thumb applicable to the relationship between the rate of climb and absolute ceiling. As the *altitude increases* toward absolute ceiling, the rate of climb *decreases* in approximate proportion.
- Don't let souped-up aircraft performance when the temperature is colder than standard instill a false feeling of security. Watch out for the warm days and check the Koch chart (*below left*) for performance before every flight.
- Rather than operate between 10:00 a.m. and 5:00 p.m. from a field that has high temperatures with correspondingly high density altitudes, try flying early in the morning. Remember that it is possible to run into a condition where the density altitude is higher than the absolute ceiling.

Proposed Rule Would Ban Flights over Disaster Areas

Comments on a proposed FAA rule that would restrict non-participating aircraft from operating close to the scene of a disaster area are due June 21.

Purpose of the proposal is to permit airborne relief operations to be conducted safely and free from interference by sightseeing and other non-essential airplanes in the airspace over aircraft accidents, forest fires, earthquakes, floods, train accidents and other similar disasters.

The danger of mid-air collision also would be greatly minimized. Even without the presence of relief aircraft, the potential hazard of mid-air collision created by many low-circling aircraft is great over a disaster site. More than 70 sightseeing aircraft were reported over a forest fire not long ago.

Provision is made for news-gathering planes and other aircraft on legitimate business to enter the disaster area, but on an orderly and coordinated basis. Such flights would be permitted to fly above altitudes being used by relief planes, or at the same altitudes. In the latter case, approval would have to be obtained from the responsible relief agency.

Aircraft other than relief planes having legitimate business in the disaster area would have to give FAA air traffic control prior notice of their intention to fly in the area and file an abbreviated flight plan. Unless otherwise authorized, minimum flight plan information required would be: aircraft identification and radio call sign; type of aircraft; radio transmitting and receiving frequencies; proposed time of entry into the area; estimated elapsed time of flight within the area; name of news media or other purpose of flight.

In all cases, news planes and other non-rescue planes operating in the disaster area would have to fly in accordance with normal civil operating rules. For example, no airplane can operate less than 1,000 feet above a congested area or within 500 feet of persons or structures in an unpopulated area. This rule does not apply to helicopters.

The designation of a disaster area would be a coordinated action on the part of the FAA and the responsible rescue agency. The appropriate FAA Air Route Traffic Control Center would issue a Notice to Airmen (NOTAM) defining the geographical limits of the disaster area. Its dimensions would cover a maximum of five miles from the disaster site and extend from the surface to 2,000 feet. The NOTAM would be broadcast periodically on facility voice channels. Pilots also would get the NOTAM during pre-flight and in-flight briefings.

Aircraft operating in and out of airports located within the disaster area would be required to fly so as not to hamper the activities of relief planes. Normal enroute flights would be required to avoid the disaster area by flying around or above it. If weather, terrain or other conditions made this impractical, enroute aircraft would be permitted to fly through the area if they first obtained air traffic control clearance.

AIR-MINDED CALIFORNIA CITY STRIVES TO SAVE ITS AIRPORT

Aviation progress was dramatized at the Air Fair by models of the old and the new in airplane development: a Cessna 1962 Skyland and a 1929 Kreider-Reisner Challenger.

FAA set up a temporary control tower to handle aerial visitors.

Antique airplanes, like this Kinner Fleet of the 1930s, helped attract visitors.

The disappearing general aviation airport is a critical national problem, but out on the San Francisco peninsula, the people of San Carlos are doing something about it.

Faced with the loss of their airport, the citizens of this city of 20,000 organized the Peninsula Association for Airport Development (PAAD). Their objective is to promote public ownership of the facility by presenting a true picture of its value to the community.

The PAAD campaign goes to the core of general aviation airport problems—local support. The FAA and other aviation organizations provide important support for airport development and operation, but no airport can be a true success without local understanding of its important role in a community's economy.

The general aviation situation in the San Carlos area is typical of that existing in many communities throughout the United States. Twelve years ago, there were six general aviation fields on the peninsula between San Francisco and Palo Alto. Today, there are only two, and the one at San Carlos is in trouble.

The trouble began when a private company which had been developing the San Carlos airport site was forced into bankruptcy. The citizens suddenly found themselves faced with the very real possibility of losing their airport.

PAAD was formed and quickly petitioned the County Commissioners not to take any action which might adversely affect the airport's future until a thorough study of the subject could be made. The Commissioners readily agreed, and the organization offered its services in helping to develop pertinent facts and figures. A presentation subsequently was made to the officials, including an airlift to publicly-owned airfields in the area to show how they benefit their communities.

Later at a public hearing, the FAA District Airport Engineer and other witnesses testified on the need for the San Carlos field. There was almost no opposition, and the Commissioners voted to proceed with the acquisition of the airport site.

But problems remained. The bankrupt company secured a Federal injunction prohibiting the county from going ahead with condemnation proceedings. The matter subsequently was thrown into protracted litigation which is still in progress.

PAAD, meanwhile, foreseeing the possibility that local citizens might soon be asked to vote a bond issue for acquisition, developed an imaginative plan to demonstrate the value of the airport to the area.

In late April, the organization staged a weekend "Air Fair" at the San Carlos Airfield to show how the facility can contribute to the economic well-being of the community.

More than 10,000 showed up to view the modern business and personal aircraft flown in for the occasion. Several antique airplanes also were put on display. Together, the old and the new, they served as a reminder of the tremendous progress general aviation has made in recent years.

The FAA established a temporary tower to control the heavy air traffic at the Fair. So many small planes were attracted that a scheduled flyover of Navy jets had to be cancelled. The tower registered 540 landings and takeoffs on the first day, and more than 700 on the second. Free rides were given to nearly 1,000 visitors during the two days. Local pilots donated both their services and aircraft to the effort, even paying for their own gasoline.

Even the most skeptical observers classified the show an unqualified success. Samples of public opinion taken during and after the Fair indicated that PAAD had made its point—the general public apparently now believes that the airport is an important asset to the area.

As a result of the enthusiasm generated by the Air Fair, aviation-minded citizens who formed PAAD have every reason to view the future with optimism. Although the battle to preserve the San Carlos airport is far from won, they feel confident public opinion now is much more favorably disposed toward their campaign.

Rapidly Increasing Aviation Medical Examiners Facilitate Physical Exams

Continuing growth of FAA's Aviation Medical Examiner Corps (*see map*)—now more than 5,100—adds to their convenience for airmen applying for medical certificates.

The requirement that applicants for medical certificates take their exams from Aviation Medical Examiners was adopted two years ago to assure fair and consistent application of medical standards for all airmen by physicians who have an understanding of aviation. Under this plan, the Agency finds it easier to fully inform examiners on changes in aviation medical standards and examining procedures.

All qualified physicians are encouraged by the Civil Air Surgeon to apply for designation as Aviation Medical Examiners. Such examiners are responsible for maintaining detailed knowledge of a manual of instruction, published standards and periodic directives issued by the Agency. In addition, they must possess the equipment and facilities necessary to carry out prescribed examinations.

All are required to attend a seminar once every three years. So far, about 1,400 have attended these seminars, held at medical schools throughout the country, to provide the physicians with the latest information on research in aviation medicine, and help establish closer rapport between them and the Agency.

At a recent seminar held at Harvard. Prof. Ross A. McFarland, Director of the Guggenheim Center for Aviation Health and Safety, summed up the role of the examiners when he stated, "The medical examiner can prolong the useful life of pilots and advance flight safety by using all available techniques and procedures."

Seminars included such topics as "Aviation Physiology," "Medical Aspects of Accident Investigation," "Effects of Loss of Sleep on the Nervous System" and an address by Dr. Paul Dudley White, renowned heart specialist, on "Maintaining Fitness in Airmen."

An airman who requests an exemption from the medical standards may apply to the independent Medical Advisory Panel of physicians established by the Agency for this purpose. The panel reviews petitions and advises the Administrator whether the specific nature of a medical defect is such that an airman can be exempted from the medical standards without endangering the public's safety.

Any applicant who is denied a medical certificate may appeal the decision to the Civil Aeronautics Board.

FAA-Air Force Conference Reviews Safety Procedures

Safety procedures in civil and military aviation were discussed recently at a joint FAA-Air Force conference in Washington.

FAA Administrator N. E. Halaby and other top Agency officials were briefed on Air Force accident prevention by Maj. Gen. Perry Griffiths, USAF Deputy Inspector General for Safety. General Griffiths pointed out that the Air Force has reduced the accident rate from 561 per 100,000 flying hours in 1921 to less than six over the past several years.

Halaby disclosed that the FAA is assigning a man from its Flight Standards Service and another from its Air Traffic Service for liaison duty on General Griffiths' staff. The appointments are part of a continuing effort to promote greater cooperation between the FAA and the military services on safety matters.

Other subjects discussed include the problem of pilot aging, use of flight recorders, prevention of mid-air collisions and air traffic control techniques. The group also reviewed Air Force supersonic flight experience as it applies to the development of a civil supersonic transport.

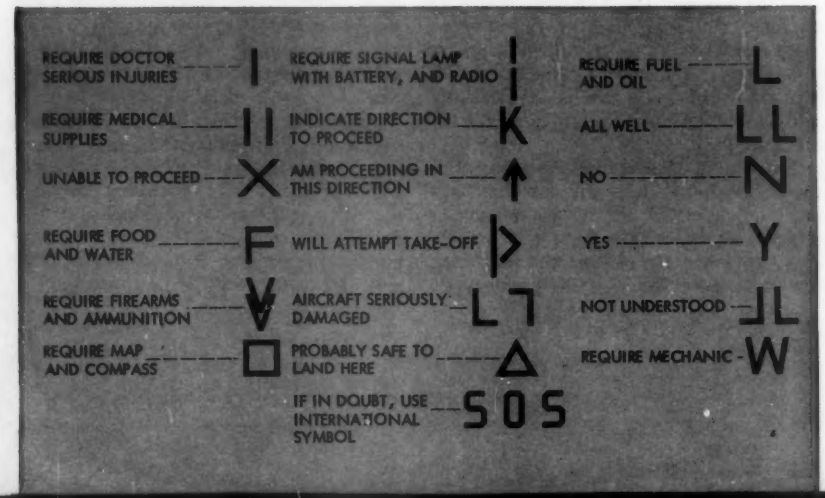
LIFE SAVING SIGNS

If you are forced down and need help, you can speak volumes with your feet just by tramping symbols in the snow, or making symbols of tree branches or strips of cloth laid out in a clearing.

All of aviation has standardized on the 19 symbols shown here that will give a search party precise information.

Are these symbols available somewhere in your airplane, ready for emergency use? Or will you some day be motioning incoherently to a puzzled searcher in the air above?

For a free copy of these symbols drop a card to "FAA Aviation News".



Major Navaids Commissioned in April

SFL (Sequence Flasher Lights): Bristol. Tenn.; Orlando, Fla.; Lafayette, La.
LRR (Long Range Radar): Meridian. Miss.; Los Angeles.
ILS (Instrument Landing System): Detroit
VASI (Visual Approach Slope Indicator): New York International; Miami; Oklahoma City.
TVOR (Terminal VOR): Hazleton, Pa.
RCO (Remote Communications Outlet): Dubois, Idaho.
ALS (Airport Lighting System): Bristol. Tenn.; Orlando, Fla.

BOGUS PARTS RACKET IS THREAT TO AIR SAFETY

A new twist to the bogus parts racket, a perennial threat to aviation safety, has been halted by two FAA inspectors, T. W. McCrackin and Delbert J. Clark, of the Indianapolis General Aviation District Office. Through their efforts, an unscrupulous junk dealer was enjoined by the U. S. District Court from selling dangerously unairworthy aircraft and fined $4,000.

In other cases, the use of bogus replacement parts has resulted in fatal crashes. These parts, improperly stressed, improperly drilled or made from inferior materials, frequently are the cause of engine failures and collapsed landing gears. Trouble in a general aviation DC-3's P&W 1830 engine was traced to engine valves that had been purchased as used serviceable parts. Investigation showed that the shorter than standard valves had been reworked by some method that caused the stems to swell and appear genuine.

The junk dealer, advertising nearly new aircraft at bargain basement prices, attracted buyers from all over the country. But McCrackin and Clark became suspicious. Their evidence showed that the junk dealer was buying up damaged aircraft, paying cash for them and taking blank bills of sale. He then had the airplanes repaired in his own private hangar by inexperienced, non-certificated mechanics using unapproved parts.

The patched and sometimes dangerous products were sold—always within their current periodic inspection times. Purchasers were unaware that the airplanes had ever been damaged because no entries were made in the logs. They bought blindly, considering only the dollar cost. They made no effort to check the dealer's credentials, nor to question why the bill of sale was from a person other than the dealer, whose name never appeared in the transaction.

McCrackin and Clark were threatened and forced off the property for asking too many questions, but they flew over the dealer's private airstrip and got the numbers of some of the aircraft. With these they traced the original owners, obtained statements of damages and sales, located the new owners and got permission to make inspections. They uncovered spurious logs, counterfeit parts and unairworthy aircraft.

The bogus part business is very difficult to control, as not many cases are as cut and dried as that of the Indianapolis junk dealer. Most are difficult to prove. Records are seldom kept and dealers refuse to disclose their sources of supply and take no responsibility for what they sell.

Only an alert aviation community can help stamp out this dangerous practice. These men do not have access to design data, nor do they maintain quality control over the items they forge. They simply turn out passable copies. Some parts are counterfeited even to the manufacturer's brand name and original numbers.

Some years ago, for example, a dealer sold the Australian Government a shipment of useless generators. The FBI found that the generators originally had been bought for scrap, then polished, painted and tagged with the markings of an FAA-approved repair station.

A surplus parts dealer altered, remarked and refinished a discontinued clutch cone to resemble a new model, painting them to the color specified for the newer cone. Twenty of these had been shipped to Mexico before it was discovered. The Mexican authorities were alerted, the parts returned and the business stopped.

Another case involved rebuilding of seaplane floats by uncertificated mechanics. They were sold without a bill of sale or any record that evidenced the type of repairs made. Outwardly, the floats seemed normal, but inspection revealed missing rivets, the use of unapproved deck fittings and struts and bottom skins that had been replaced with an inferior grade of aluminum sheeting.

There is no legal way to prevent a manufacturer or distributor from offering shoddy merchandise for sale. Consequently, FAA holds owners, operators, repair stations and mechanics responsible for parts and materials used in the maintenance and repair of certificated aircraft. Failure to refuse parts of unknown origin could result in fines, suspensions or even certificate revocation.

As a result of the continuing appearance of bogus parts, the FAA suggests that owners and operators make doubly certain that they are buying approved parts and dealing with reputable repair stations. Approved parts are easily identified. Purchasers should demand to see:

- An Airworthiness Approval Tab, Form FAA–186, signed by an FAA representative and attached to the parts or container.
- The identification symbol "FAA–PMA" on the parts or container.
- The type certificate holder's shipping ticket, bill or other document.
- Evidence that the part is a genuine piece of military surplus, in which case it may be used on military aircraft type certificated by the FAA for civilian use.

Nearly four decades of aviation progress are reflected in these airplanes which share a common heritage. At one time or another, airplanes like these all bore the official designation N–1 and were assigned to FAA and its predecessor agencies.

The N–1s performed a variety of duties in addition to flying the Administrator on official trips. They were used to check the accuracy of navigational aids, for maintaining the pilot proficiency of CAA/FAA officials and for reconstructing flight conditions when similar airplanes became involved in accidents or incidents.

Today, most of these airplanes are museum pieces, but like a doting parent thumbing through the old family album, we find they bring back fond memories.

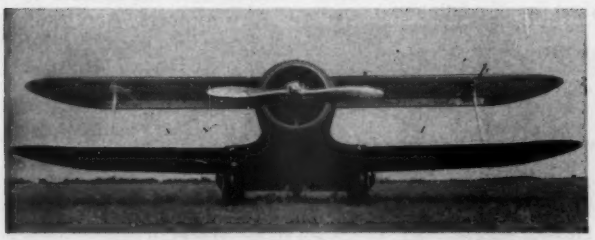
THE DESCENDANTS OF NAN ONE

1.

2.

3.

4.



5.

6.

7.

1. The first N-1 was a two-place DeHaviland DH4B registered in 1927. Its 400-hp watercooled Liberty 12 engine gave it a top speed of about 125 mph.

2. Three years later the N-1 registration passed to this six-passenger all-metal Northrop Alpha with a 425-hp Pratt & Whitney Wasp air-cooled, radial engine. Pilot's cockpit was located aft of the cabin and could be left either open or closed. The Alpha cruised at 145 mph, had a top speed of 175.

3. In 1931 the registration was assigned to a Ford tri-motor, known as the Tin Goose of the airways. The last word in passenger comfort, this plane carried 13 passengers seated in wicker armchairs. Shatterproof sliding windows could be opened for ventilation. It took two pilots to handle the 575-hp Wright Cyclone in the nose and two 300-hp Wright engines in the wings. The Ford cruised at 122 mph, could be pushed to 150 mph.

4. Fourth N-1 was a four-passenger cabin Beech C-17R with staggered wings and retractable gear. Airplane could fly a top speed of about 200 mph with its air-cooled 420-hp Wright engine.

5. The original Lockheed Electra when it became N-1 in 1936. Its two Pratt & Whitney 400-hp engines could power it at top speed of 225 mph carrying six passengers and two pilots.

6. The workhorse Douglas DC-3 became the CAA's N-1 in 1948. Two 1,000-hp Wright engines gave the airplane a maximum speed of 231 mph carrying 24 passengers.

7. Latest to bear the N-1 designation is the Grumman Gulfstream, a 12-passenger, prop-jet executive transport with two Rolls Royce Dart engines. Cruising speed is 340 mph at 25,000 ft; top speed is 350 mph at 30,000.

Letters to the Administrator

FAA

Over the past year, the FAA has been working hard to improve relations and establish better communications with the aviation community. Administrator N. E. Halaby recently wrote a letter to airmen as part of this effort to report on FAA programs and their progress. Among the responses were the airman comments published here.

FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. Please keep them brief. No anonymous letters will be used, but names will be withheld on request.

• Hazardous Power Lines

Baker Airport at Burlington, W. Va., is operated by a certificated A & P mechanic as a commercial airport where pilots are invited to bring their airplanes for repairs and inspections.

Forty-five feet from the end of the runway are two practically invisible high-tension power lines which have wrecked three different airplanes. After the third airplane struck the wires last October, the power company, the airport operator and the FAA were all asked if the wires could at least be marked if not moved.

They are still there waiting for the next victim.

M. J. Sarco
Harrisonburg, Va.

The FAA has no authority to require private industry to mark or adjust equipment. Through discussions, however, an amicable agreement can often be reached. FAA's Eastern Region will check to see what can be worked out.

• Two-Way Radio Rule

I would like to voice my feelings toward the recent ruling that requires a two-way radio in an airplane landing at a field where there is an FAA tower.

I am quite sure that it was not intended, but this rule reeks of irresponsibility and/or featherbedding. Granted that traffic at Love, O'Hare, Idlewild, etc. warrants some concern, you can't really believe that there is enough traffic at Addison, Redbird, Easterwood, Amon Carter, Austin, Lufkin and other small airports. Sure it would be safer if we all had two-way radio. It would be even safer if we had two sets in case one failed. And everybody knows that two engines are safer than one. In every cockpit there should be a full panel with instrument rating to match. And there are many other safety devices that it would be nice to have. But you cannot and must not expect everyone to have lots of fancy equipment when it is not necessary.

William G. Boyle
Dallas

The presence of an FAA tower means that a field has a minimum of 24,000 itinerant operations a year. This would include Addison, Amon Carter and Austin fields. Redbird, Easterwood and Lufkin do not have such FAA towers.

It is possible to arrange for prior clearance with the tower if you do not have the two-way radio when sufficient justification exists. Before adopting this amendment to the Civil Air Regulations the Agency carefully weighed the relatively moderate cost factor against safety. The Agency concluded this and other control rules are required for safety in dense traffic areas.

• Small Airports Disappearing

Three of us built an airport at our own cost on someone else's land with the agreement that we could use the airport as long as we liked. The field has also been used for emergency landings. I told the owner some time ago I would buy the land and extend the landing strip and build a hangar.

The owner of the land has now sold the land to the New York State Conservation Department and they intend to close the airport. There are very few airports here in the Adirondacks.

If the State doesn't want to maintain it or improve it, I would like to buy it. This is listed as a public airport. Would you see what you could do for me and the other fliers.

Joseph B. Kowalik
Otter Lake, N.Y.

FAA cannot require a State to establish or maintain an airport. We share your concern over the slow disappearance of small airports and hope that this trend will be offset by educational efforts to promote citizens' awareness of the importance of aviation to their community. In your specific case, the solution lies in working out a suitable arrangement with the appropriate State authorities.

• Designated Pilot Examiners

I read in the paper a few days ago that FAA has given authority to instructors to issue pilot certificates. It does not matter to me since I have my license already, but I thought this was an odd decision. Some of the instructors I have had as a student pilot taught me absolutely nothing. I am sure there are good instructors, but some are not. Is it wise to allow these men to issue pilot certificates?

E. J. Johnson
Portland, Oregon

FAA has not given blanket authorization to instructors to issue pilot certificates. The Agency has, however, selected about 300 well-qualified instructors, out of approximately 20,000, and given them authority to issue temporary pilot certificates. Pilots receiving these certificates are subject to recheck by FAA inspectors at any time.

• Automatic Voice

If automatic voice was put on all OMNI stations there would be fewer lost pilots. There are some stations that are almost identical and with static in the air it is somewhat confusing at times. Voice would assure the pilot that he was on the right course or if lost, it would give him the name of the town which he might be over or near.

Pearl A. Herman
McKean, Penna.

A program is under way to include automatic voice on all OMNI stations. Approximately 80 facilities now include the voice identification and all new equipment to be installed will similarly contain this identification. Existing OMNIs will gradually be converted as funds and personnel are available. We were surprised to note your reference to static, since the VOR range is static free. You may wish to check your radio equipment for some possible defect.

• VFR on Top

One problem which I'm sure is receiving attention is that of operations under IFR conditions by VFR pilots in violation of FAA regulations. I am speaking particularly of the omni-equipped pilot who climbs out through an overcast to fly VFR on top. It's a big sky, and few accidents have been attributed as yet to this type of activity, but it shakes me up to consider the possibilities around busy airports.

J. A. C.
Houston, Texas

Your concern about operations by VFR pilots under IFR conditions is indeed receiving attention, although it is difficult to determine how widespread this practice may be. FAA has under development an educational program on weather flying.

• Knowledge or Judgment?

In commenting on Mr. Caesar's letter questioning the Blue Seal program (*FAA Aviation News*, May), you apparently have fallen for that old bromide, "A little knowledge is a dangerous thing."

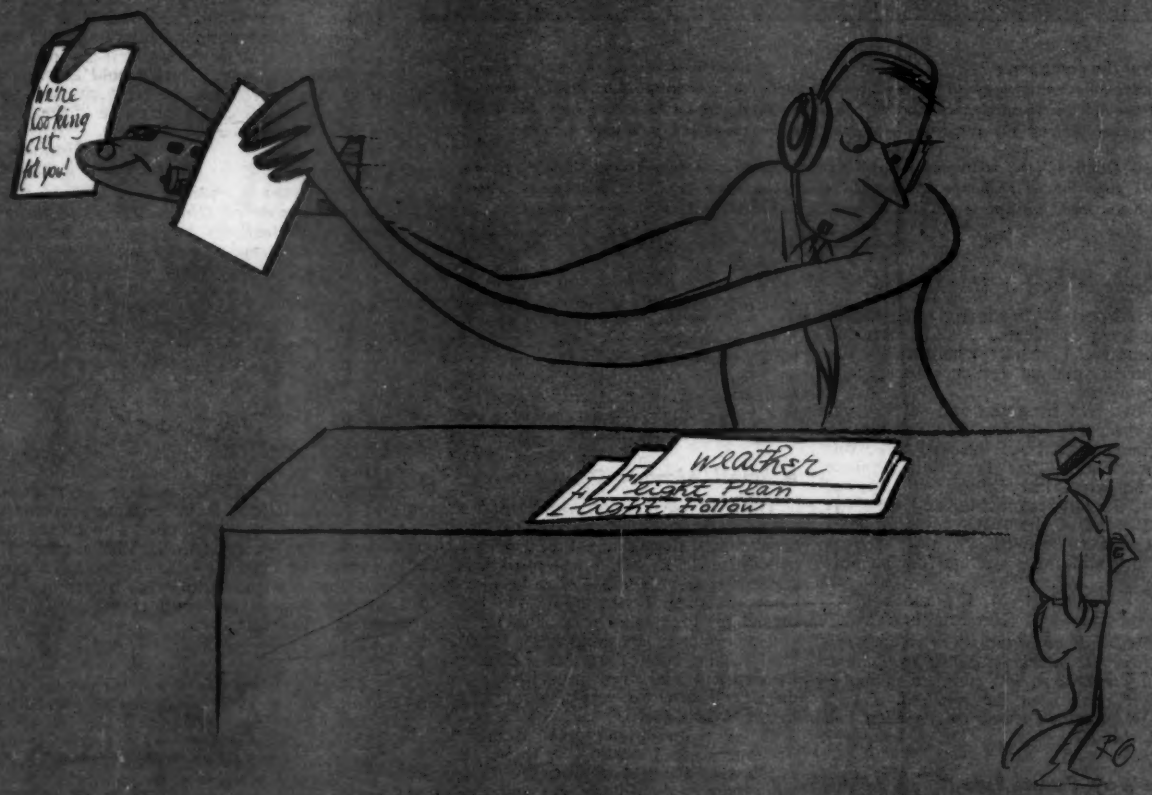
The best answer to that was written by Thomas Henry Huxley in 1877: "If a little knowledge is dangerous, where is the man who has so much as to be out of danger?"

Max Karant
Washington, D. C.

FAA feels that it is not so much the question of too much or too little knowledge. It is more a question of a pilot exercising mature judgment based upon experience and deliberate thought. The Blue Seal program is designed solely to give a pilot the minimum instrument skill to turn and fly safely out of a situation he recognizes as potentially hazardous.

"Why fly alone?" asks cartoonist Robert Osborn in his usual space on the next page. His suggestion: Take along a friend—Flight Following Service—which can provide free pre-flight and in-flight assistance.

Only MOLT flies alone when he could have company



...Ask for Flight Following Service, get pre-flight briefings, weather, NOTAMS--and search and rescue when you need it

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